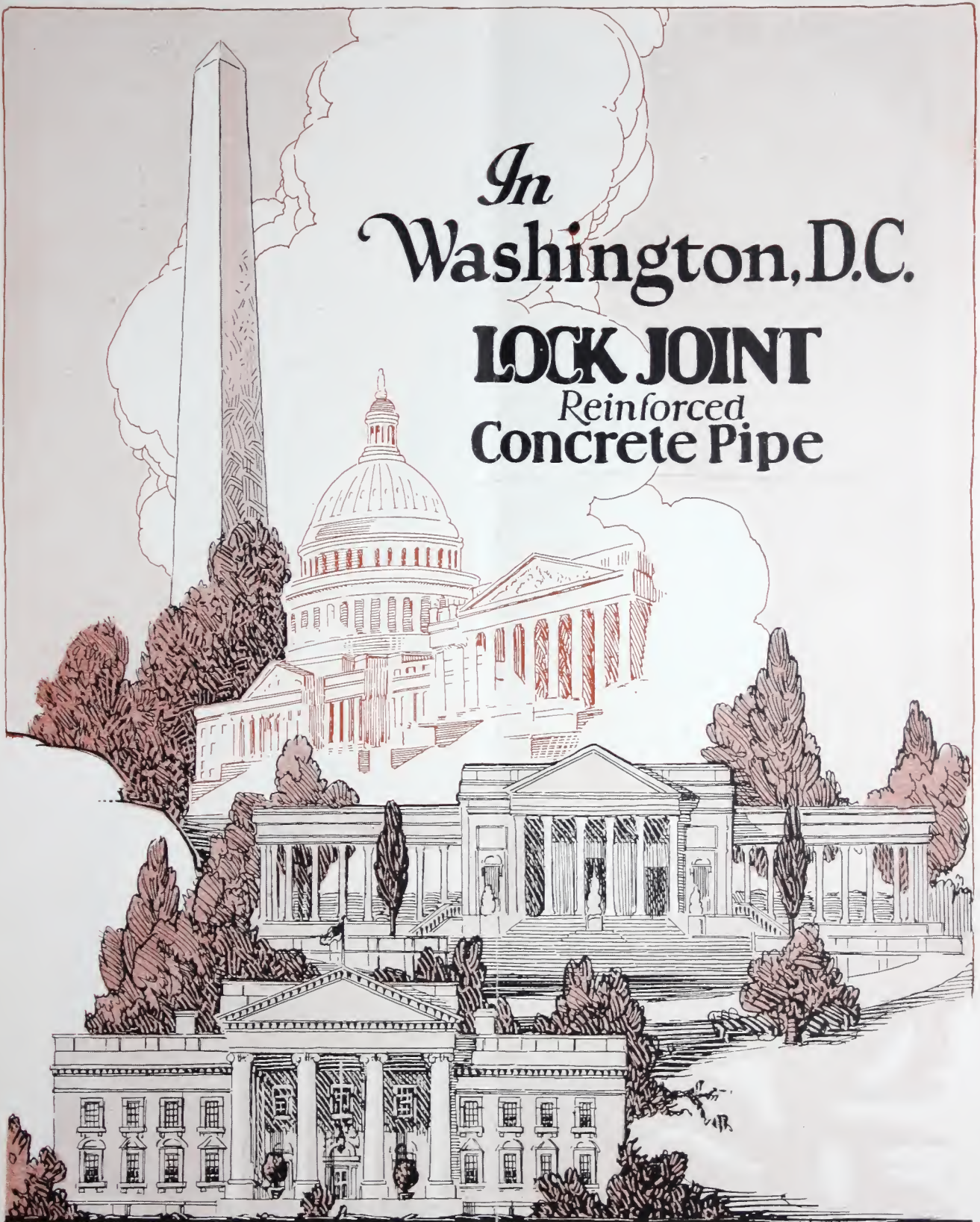


250-18.

MAY 20 '27

In
Washington, D.C.

LOCK JOINT
Reinforced
Concrete Pipe



Lock Joint Pipe Co. — Ampere, N.J.

JOINT JOINT

PIPE LINES: Five, totalling 47,060



The Location



Two More Washington Contracts Awarded to Lock Joint

DURING the few weeks while this booklet was in the process of preparation and printing, two additional contracts for Lock Joint Pressure Pipe have been awarded in Washington, D. C. They constitute the fourth and fifth contracts there for this pipe during a relatively short time.

The location of these new projects, with relation to former Lock Joint work in Washington, D. C., is made clear in the above map.

The fourth contract consists of twenty-four inch pipe, the contract being awarded by the Arlington County Sanitary District. This pipe will furnish water from the City of Washington to the district mentioned, and Lock Joint Pipe will carry it as far as the Potomac River bank. It will be capable of handling pressures up to 450'.

The fifth contract calls for an extension of the Third High Pipe Line in the District of Columbia Water Supply Project. It calls for 16,000 feet of 48" and 4,700 feet of 36" Lock Joint Pipe capable of handling pressures up to 350'. The line will run from the Second High to the Third High Reservoir in order to supply water to the Reno Reservoir and that district of the city adjacent to Nebraska Avenue and Military Road.

LOCK JOINT PIPE CO.
LOCK JOINT PIPE CO.
LOCK JOINT PIPE CO.

LOCK JOINT PIPE CO.
LOCK JOINT PIPE CO.
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LOCK JOINT PIPE CO.
LOCK JOINT PIPE CO.

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The Location

The Most Efficient Most Satisfactory Most Economical in the Long Run!

THE fact has always been recognized that the Value of a pipe line depends upon its Carrying Capacity, Operating Costs, and its Life, and that the only excuse for a Water Line is to Transport Water. The United States Government Engineers have always known this, but not until Lock Joint Cylinder Pipe was perfected for the higher heads were they able to get what they wanted and to properly evaluate advantages on a basis of merit. The specifications and summary of bids found on the two following pages, which relate to one contract, the "First High Service Pipe Line," clearly show relative values and why Lock Joint Pipe was chosen for the important work of supplying water to the Nation's Capitol.



Washington D. C.

Bids will be received for five different kinds of pipe, viz: (a) cast iron, (b) welded steel, (c) lock-bar steel, (d) riveted steel, and (e) reinforced concrete pipe. The particular kind of pipe which will be adopted will depend upon the relative total cost of these kinds of pipe as determined by the priced bid and their relative value as determined by the contracting officer.

The relative value of the several kinds of pipe will be compared on the basis of first cost, durability and carrying capacity, as follows:

(a) First Cost. First cost will be obtained from bids received.

(b) Durability. The adjustment in cost of the pipe for the durability factor will be obtained by capitalizing at 4 per centum, compound interest, the annuity or yearly sinking fund necessary to replace the pipe at the end of its estimated life, which will be taken as 100 years for cast iron pipe, 70 years for reinforced concrete pipe, and 35 years for steel pipe.

(c) Carrying Capacity. The adjustment in cost of the pipe for the carrying capacity factor will be obtained by capitalizing at 4 per centum interest the extra annual cost of pumping against the friction losses, calculated on the basis of the William and Hazen formula with "C" equal to 100 for the cast iron and steel pipe and 130 for the concrete pipe, with the cement lined cast iron pipe, with the flow estimated at 26,000,000 gallons per day and the cost of power at 5 cents per million gallons per foot lift.

The adjusted bids will be taken as the sum of the amount bid and the respective adjustments in cost. This adjustment will be used for comparison of bids only.



Buys Carrying Capacity

WASHINGTON, D. C., BIDS

SUMMARY OF RELATIVE VALUES

	Lock Joint Reinforced Concrete Pipe	Unlined Cast Iron Pipe	Cement Lined Cast Iron Pipe	Steel Pipe with Bituminous Enamel Coating
FIRST COST				
Lowest bids for the several kinds of pipe	\$283,950.00	\$370,070.50	\$387,088.50	\$358,800.00
DURABILITY				
Capitalization of yearly sinking fund to replace pipe at end of its esti- mated life—				
Steel pipe 35 years				90,925.22
Concrete pipe 70 years	18,235.12			
Cast iron pipe 100 years		7,327.48	7,664.44	
CARRYING CAPACITY				
Capitalization of extra annual pumping cost against greater friction	<u>93,417.19</u>	<u>151,246.87</u>	<u>93,417.19</u>	<u>151,246.87</u>
COMPARATIVE COSTS				
When different pipe lines are brought down to the same basis as to life and carrying capacity	\$395,602.31	\$528,644.87	\$488,170.13	\$600,972.09
PERCENTAGE RELATION				
between comparative costs	100 %	133 %	123 %	152 %



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What is Cylinder Pipe?

LOCK Joint Cylinder Pipe is a steel pipe encased in reinforced concrete. The steel cylinders, when welded to our joint rings, would make a pipe in themselves but they would not last long. The protection of reinforced concrete—and plenty of it—makes a positive and permanent combination of the virtues of these two very desirable materials. When to these are added our expansion joints, we have a combination embodying the ideals so long sought after by Water Works Engineers—the strength and elasticity of a steel pipe; the strength, permanence and protective qualities of reinforced concrete; and the necessary flexibility of effective expansion joints.

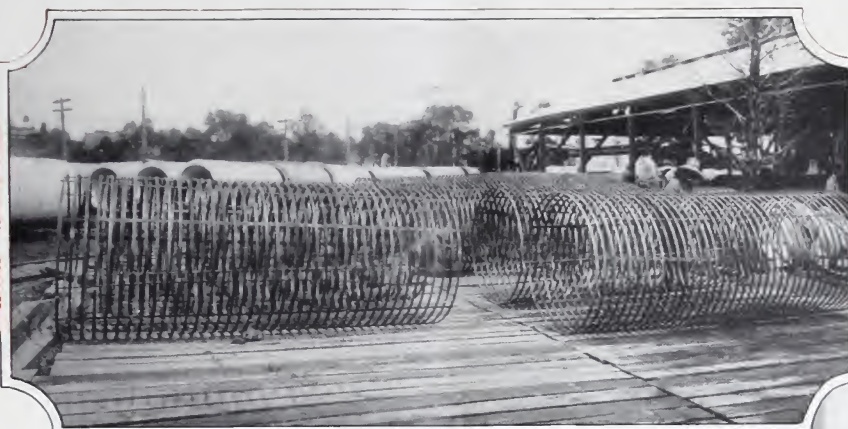


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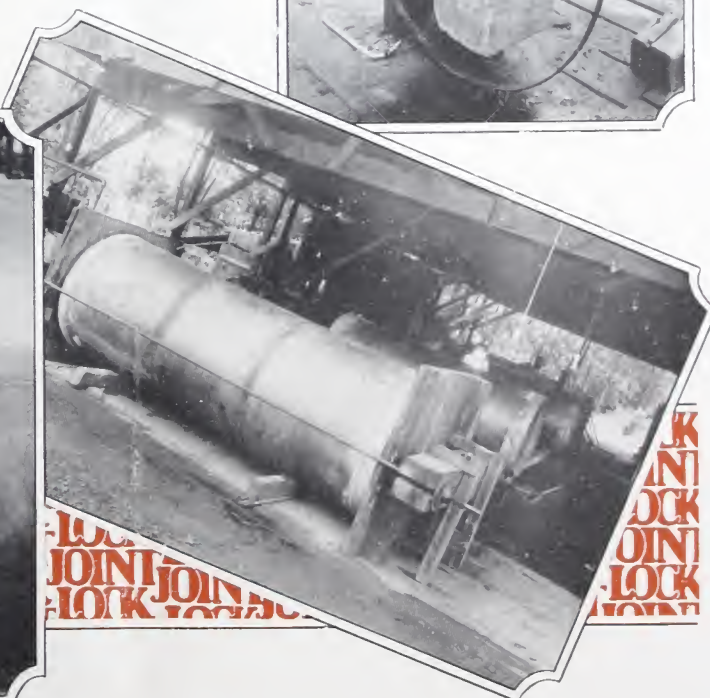
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Reinforcing & Testing /

THE reinforcement for these pipes consists of a welded steel cylinder and welded steel hoops. The cylinder, after the joint rings are welded to it, is placed in the mould and towards the interior surface of the pipe. The circumferential welded hoops, securely fastened to the longitudinal reinforcement, are placed outside of the cylinder and towards the exterior of the pipe. On larger sizes a light steel mesh is placed inside of the steel cylinder. All welds are tested for strength and tightness before going into the pipe. The amount of reinforcement varies according to the size of the pipe and the head under which it will operate. It is figured on a unit stress not exceeding 12,000 pounds per square inch and the concrete is not assumed to have any tensile strength.

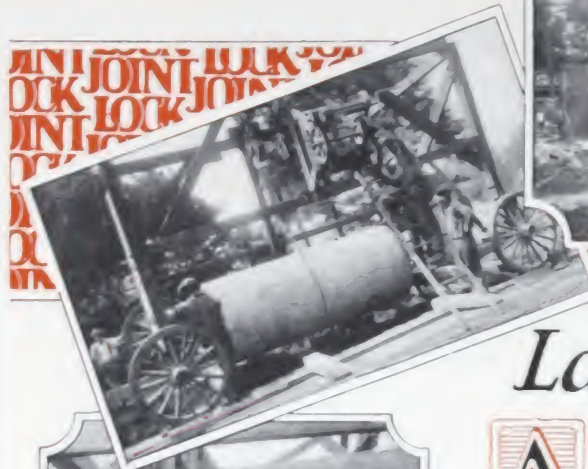


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Laying the Pipe/



IS characteristic of all Lock Joint Pressure Pipe Lines, no operation was held back on account of joint making. The Lead-Steel Expansion Joint, which was employed, was finished from the interior of the line, usually after the latter had been backfilled. As the pipes were laid, the spigot end of one was placed into the bell end of the section last laid, with the fibre-filled lead gasket placed therein. The pipe was pushed snugly into place and was then at once ready to receive the next one. No bell holes had to be dug in the trench to facilitate any operation of joint making. All this was of especial importance where a quick resumption of traffic, temporarily impeded by the opening of trench, was imperative.

Most of the curves were readily made without specials by taking the necessary deflections in the joints.



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Finishing the Job/

SOME of the conditions in these Washington projects were out of the ordinary. Certain locations called for special tracks on trestles spanning ravines for the transportation of the heavy sections from the point of manufacture. Rock Creek had to be crossed and its steep slopes called for trenches and laying conditions of an unusual type. But there was no condition which Lock Joint experience and equipment were not easily able to meet.

The leakage requirement of the specifications called for not more than 200 gallons per inch of diameter, per mile, per day; and volumetric leakage tests under maximum specified pressure, showed that this requirement was met with a safe margin.



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*Supplying Water
to 500000 People
in the Nation's Capital*

LOCK JOINT
Reinforced
Concrete Pipe

Pressure - Sewer - Subaqueous